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Death anxiety resilience; a mixed methods investigation

Abstract

Objectives:

Research was conducted examining how death anxiety influenced PTSD and mental health among people who have experienced a life-threatening event.

Design & Methods:

This study was conducted using undergraduate university students in Lithuania. The study used a mixed-method design and in phase 1, participants (N=97) completed self-report questionnaires that gathered information on demographics, death anxiety, trauma and well-being.

Results:

Data indicated a significant correlation between death anxiety and PTSD, but not psychiatric co-morbidity. Phase 2 attempted to further explore the phenomenological experience of participants with full PTSD, and 6 semi-structured interviews were conducted. IPA analysis found three major themes in response to the life-threatening event; self-efficacy, religious coping and existential attitude.

Conclusion:

Overall these coping mechanisms allowed participants to develop resilience against the effects of death anxiety and minimize its negative impact on mental health.

Keywords: Death Anxiety, PTSD, Self-efficacy, religious coping,
existential

Death anxiety resilience; a mixed methods investigation

Introduction

The link between death anxiety and posttraumatic stress disorder (PTSD) has been investigated in several studies, most of which treated death anxiety as an outcome of exposures to traumatic events. For example, heightened levels of death anxiety have been observed following traumas such as exposure to toxic material [1], technological disasters [2-4], war situations [5] as well as a range of other traumas [6-9]. Furthermore, studies have documented high levels of comorbidity between death anxiety and other symptoms of psychopathology frequently observed following trauma exposure, such as anxiety and depression [2, 10-15].

Studies focusing on death anxiety as a predictor of PTSD outcomes (i.e. the extent to which death anxiety might represent a predisposing factor to PTSD co-morbid symptoms) are scarce. Martz found that death anxiety predicted the severity of PTSD symptoms among people with spinal cord injury [16]. Other studies found that death anxiety predicted both overall PTSD severity as well as the severity for the three main clusters of PTSD symptoms (re-experiencing, avoidance and hyperarousal) among patients with HIV [17, 18]. Given the paucity of studies which examined the contribution

of death anxiety to PTSD, more research is needed to replicate and clarify this relationship.

Anxiety buffer disruption theory offers a theoretical account which potentially explains the association between death anxiety and PTSD. According to this theoretical account, due to the overwhelming nature of death anxiety, we find ourselves denying death and defending against it, for example by adopting certain belief systems, engaging in ritualistic practices [19], sharing the cultural worldviews [20-24], or increasing self-esteem [25]. The theory assumes that these “defences” protect us against death anxiety as well as other types of negative affect. However, exposure to trauma could disrupt such defence mechanisms and exacerbate death anxiety. In parallel, the disruption of defence mechanisms might also exacerbate trauma-related emotional distress, leading to the emergence of PTSD symptoms [26].

The aims of this study were twofold. Firstly, we aimed to clarify the relationship between death anxiety, PTSD and psychiatric co-morbidity in a cohort of Lithuanian university students. Guided by the literature, we hypothesized that death anxiety would predict increased PTSD symptoms and psychiatric co-morbidity (see figure 1). Secondly, we used Interpretative Phenomenological Analysis to explore the subjective experience of people exposed to traumatic life events, and how they understood death anxiety in relation to these

experiences. The use of this qualitative method was deemed appropriate given: (i) The paucity of prior qualitative research on this topic [9, 27]; (ii) Evidence that qualitative methods are well tolerated by trauma survivors (e.g. 28-31); (iii) The potential for this qualitative approach to elucidate the underlying/mediating mechanisms involved in the relationship between trauma and death anxiety, therefore informing future quantitative studies; (iv) The evidence that mixed methods approaches (i.e. the integrated use of qualitative and quantitative methods) can provide a more comprehensive level of insight and understanding into the studied phenomena [30-32].

Phase 1

Participants

Ninety seven university students (39 males) with an average age of 20.17 (SD=2.19) were recruited from a Lithuanian university. Almost all (97%) of the students were single. Over half of them (52%) were Lithuanians and the rest were mostly from Northern and Eastern Europe (48%). Over half (60%) were a lower level year (years 1 and 2) group at the time of the study.

Procedure

The study received Ethical and Procedural approval by the University International Review Board. After providing written consent informed consent, all participants completed the questionnaires during a single lecture.

Measures

Due to the bilingual nature of the sample, both Lithuanian and Russian versions of the questionnaire measures were developed by native speakers using the “back-translation method” to insure fidelity with the original English versions. These included:

A “Demographics information” questionnaire assessing several demographic characteristics: (i.e. age, gender, year level, marital status national identity).

The Posttraumatic Stress Diagnostic Scale (PDS) [33], a self-report questionnaire assessing PTSD symptoms resulting from experiencing a traumatic event according to DSM-IV criteria. The PDS comprises two parts. The first part assesses exposure to several traumatic events (e.g. natural disasters, accidents, physical or sexual assault, combat/exposure to a war zone etc.), the length of time elapsed since traumatic exposure, and the response experienced by

the participants in relation to the traumatic events considered (whether the respondents felt helpless or terrified during the event, and whether they felt their lives were in danger). The second part of the PDS comprises 17 items assessing the severity of PTSD symptoms resulting from the most severe traumatic experience reported by the participants using a 4-point Likert scale (0="not at all"; 3="almost always"). The scale provides three separate subscales corresponding to re-experiencing symptoms, avoidance and hyperarousal. In previous studies, the PDS has shown excellent internal consistency, test-retest reliability and convergent validity with other widely used diagnostic measures of PTSD (REFERENCE).

The General Health Questionnaire-28 (GHQ-28) [34], measures general psychological morbidity and global dysfunction. It comprises 28 items rated on a 4-point Likert scale (1="XXXX"; 4="xxxx"). The questionnaire yields four subscales: somatic symptoms, anxiety, social dysfunction and depression. The GHQ-28 has shown a sensitivity value of 88% at a specificity of 84.2% and an overall misclassification rate of 14.5%.

The Death Anxiety Scale (DAS) [35], a widely-used self-report instrument of death anxiety comprising 15 true or false items. The DAS

has been shown to have good reliability, internal consistency and test-retest reliability.

The internal consistency of the items of the PDS, GHQ-28 and DAS were assessed using item alpha reliability. For the PDS the results showed good reliability for the three subscales of re-experiencing ($\alpha=0.867$), avoidance ($\alpha=0.789$) and hyperarousal ($\alpha=0.856$). The results also showed good reliability for the four subscales of the GHQ-28 (somatic $\alpha=0.764$; Anxiety $\alpha=0.798$; Social dysfunction $\alpha=0.692$; Depression $\alpha=0.886$). The DAS showed moderately good reliability ($\alpha=0.563$).

Data Analysis Plan

Based on established scoring criteria (REF), PDS scores were used to classify participants into the following groups: 'no PTSD' (not meeting the diagnostic criteria) and 'full-PTSD' (meeting all the symptom criteria for re-experiencing, avoidance and hyperarousal along with helplessness, terror and an impact upon daily function). T-tests, chi-Square and multivariate analysis of variance were used to compare the no-PTSD and full-PTSD groups in terms on demographic variables. Correlation coefficients including point biserial correlation (r_{pb}) were used to establish the relationship between demographic

variables and outcome variables. Point biserial correlation was used when one of the variables in the correlational analysis was dichotomous.

Hierarchical Regression models were estimated to test whether death anxiety significantly predicted predict the outcome measures (i.e. PDS and GHQ-28 scores). Due to non-normality, the PDS total score was reflected and subjected to a square root transformation. In addition, the GHQ-28 total was reflected and subjected to a logarithmic transformation. No outliers were detected during the exploration of diagnostics (Mahalanobis ≥ 3 SD). Following exploration and transformation, the assumptions of multivariate normality, linearity and homoscedasticity were met. Regression imputation was used in order to address the missing data. Although there are problems with single imputation methods for significant proportions of data, when less than 1% of missing responses are imputed (as in the case of the present study), there is little distortion [36].

Results

Forty-eight (49%) participants of the whole sample reported experiencing a traumatic life event and the remaining (51%) did not experience a traumatic event (the control). Out of the trauma group, over a third (38%) experienced one event, while over a quarter (26%) experienced at least two events. The remaining participants

experienced three or more events. Using the diagnostic criteria based on the PDS, 24 out of 48 people with trauma (50%) met the diagnostic criteria for full-PTSD and equally 24 people (50%) did not meet the criteria for PTSD. When participants were asked about the traumatic life event which bothered them the most, among the most common answers in the PTSD group were attempted suicide 41.6%, physical assault by a stranger 16.6% and serious accident 12.5%. In the No PTSD group the most common answers were serious accident 25%, physical assault by a stranger 25% and life-threatening illness 16.7%.

<Insert Table 1>

There were no significant differences between groups in terms of the proportion of males and females participating in the study ($\chi^2 = 0.58$, $df=2$, ns), marital status (dummy variable: single vs not single, Fisher's exact test $\chi^2 = 3.87$, $df=2$, ns) and ethnicity (dummy variable: Lithuania vs not Lithuania $\chi^2 = 3.74$, $df=2$, ns). However, the groups differed in age [$F(2,94)=4.59$, $p<0.05$] with the PTSD group being significantly older than the control group ($P<0.05$). There was also a significant difference between group in the proportion of upper level and lower level students participating in the studies ($\chi^2 = 7.70$, $df=2$, $p<0.05$).

Comparing the traumatic life event groups, on average, the PTSD group experienced more traumatic events than the no-PTSD

group; however there was no significant difference between them ($t=1.96$, $df=32$, ns). In addition, the PTSD group on average experienced the traumatic life event which bothered them the most almost three years ago while the no-PTSD group experienced this event just over four years ago. However, there were no significant differences between groups ($t=-1.43$, $df=32$, ns). Turning attention to the individual significant events, the odd ratio calculation shows that the PTSD group were seven times more likely to have attempted suicide than the no- PTSD group (OR=7.14, 95% CI:1.35-37.74).

Table 2 describes the means and standard deviation of psychiatric co-morbidity and death anxiety of the three groups. The results showed that the three groups did not differ significantly in somatic problems, [$F(2,89)=0.77$, ns], anxiety [$F(2,89)=0.63$, ns] and social dysfunction [$F(2,89)=3.08$, $p=0.051$]. However, they differed significantly in depression [$F(2,89)=3.97$, $p<0.05$]. Post Hoc (LSD) analysis showed that the full PTSD reported a higher severity on depression than the no-PTSD group ($p<0.01$) and the control group ($p<0.05$). In terms of death anxiety, there was no significant difference between groups [$F(2,89)=2.34$, ns]

<Insert Table 2>

Prior to the regression analysis of establishing the relationship between death anxiety, PTSD and psychiatric co-morbidity, the “victim

variables” (i.e. all the demographic variables, the number and type of life-threatening events and time of onset) needed to be controlled for since research shows that they have been related to PTSD outcome [37, 38] To this end, correlation coefficients were carried out to see which demographic variables were related to outcome. In the regression analysis, the variables that were significantly correlated with outcome were entered into the regression model. Table 3 shows that there were no significant correlations between the demographic variables with outcomes. Therefore, these variables were not entered into the regression model (see table 3).

<Insert Table 3>

Regression results show that death anxiety significantly predicted re-experiencing [$F(1,40)=8.29$, $p<0.01$] and accounted for 15% of the variance (adjusted $R^2 = 0.151$). Similarly, death anxiety significantly predicted avoidance [$F(1,40)=7.54$, $p<0.01$] and accounted for 14% of the variance (adjusted $R^2 = 0.138$). In addition, death anxiety significantly predicted hyperarousal [$F(1,40)=14.93$, $p<0.001$] and accounted for 25% of the variance (adjusted $R^2 = 0.254$). However death anxiety did not predict psychiatric co-morbidity [$F(1,42)=3.30$, ns] and explained only 5% of the variance (adjusted $R^2 = 0.051$).

Phase 2

Method

Participants

Six people (M=3, F=3) were recruited for the study. Selection criteria were as follows:

- a) Participant experienced at least 1 traumatic life event
- b) Participant from the phase 1 who had had diagnosis of PTSD
- c) Young adults of similar ages
- d) Lithuanian nationality
- e) Good level of English proficiency as established by university criteria, namely, satisfactory TOEFL score and admission interview assessing English proficiency

Assessment of PTSD was made through the results of the PDS scale in phase 1. All participants were white with age ranging from 19-21 years old and single. In addition to demographic information, information was gathered on the type of life traumatic event which bothered them the most and how long ago the event occurred.

In the interviews, an attempt was made to explore the participant's experience of death anxiety related to the traumatic event. For the study, death anxiety was used to conceptualize the fear generated by an awareness that life had been threatened [39]. All participants did reflect death awareness and some apprehension generated by the event

During the interviews, participants were asked to describe the traumatic event. In this description of the event, participants were aware of having feelings of fear and anxiousness about death. They acknowledged feeling scared about almost dying during the traumatic event and saw a connection between death anxiety and said event.

Procedure

Following completion of the phase 1 data analysis, it was identified that 48 participants that experienced a traumatic event, 24 met the diagnostic criteria for PTSD, and 13 of those 24 were of Lithuanian nationality. They were contacted via e-mail and asked if they would be willing to participate in an interview to further examine their experience of the traumatic life event. Out of those 13, 6 participants were available for interviews, 2 were unavailable and 5 did not respond to the invitation. The participants were offered 20 Litas for their time and paid at the end of the interview. This researcher met with the participants to conduct semi-structured interviews to discuss what the

research would involve and allow them to ask any questions. Through both verbal and written notice, participants were reminded that they did not have to take part of this research and if they did not wish to, it would not affect their academic standing in any way. They were informed that they could terminate the interview at any time.

Participants were told that all of the information was confidential and no identifying information would be used. All of the 6 participants chose to be interviewed on campus and signed the consent form before the interview. All of the participants were interviewed by the primary author and conducted in English. Interviews were based on a semi-structured schedule which asked general questions of the participants about their experience of the traumatic events; their subjective understanding of death and if there is a connection between the two. Interviews were audio-taped on digital recorders and transcribed verbatim.

For this phase 2 of the study, it was decided that Interpretative Phenomenological Analysis (IPA) should be used as it is effective at capturing individual phenomenological experiences. The selection criteria were chosen to support homogeneity, which is in line with qualitative research practice [40]. The sample size of 6 participants, as supported in current IPA research, is enough to generate valid themes capturing the experiences of the participants [41, 42]. This investigation is trying to understand the frame of reference the participants use to understand their

trauma and explore the subjective processes involved in trying to make sense of it. IPA allows exploration of meaning through analysing the statements of participants and eliciting key themes. As with most qualitative procedures, IPA involves a double hermeneutic in that it recognizes that the researcher's own experiences and meaning is part of the knowledge exchange. However, this can also be a benefit in that the researcher is also attempting to make sense of how the participant understands trauma [43].

After the semi-structured interviews were conducted and recorded, transcripts were created and then read repeatedly in order to first note initial observations and points of interest. Then themes were collected into sub-ordinate themes through interpretation and analysis. These sub-ordinate themes were then examined across participants and clustered according to larger 'super-ordinate' themes, excluding marginal ones. In order to check the validity of the analysis, the participants were contacted and asked to provide feedback. They were given transcripts of their interview and summary of themes. The participants did not offer any contradictory or additional information, but did confirm the themes generated. Some of the transcripts and all the themes were also examined by the co-researcher and there was agreement over the themes after some lengthy discussion was held between the co-researchers. Thus, once participants and co-

researchers confirmed the analysis, the super-ordinate themes were deemed to be appropriate.

An important note of reflexivity, the primary researcher acknowledges that certain prejudices as an American from a different cultural background and age to the participants may affect the understanding of results. In addition, as an instructor at the university, a certain power differential and being an insider in this particular academic community could impact the dialogue between this researcher and the participants. Gender difference could have limited the level of vulnerability for female participants and in turn the understanding from this researcher. Finally, the primary researcher has also experienced traumatic events which may have influenced the conclusions due to personal bias and beliefs. Of course, an attempt to minimize these biases were made by having the themes reviewed and confirmed by the participants and by the co-researcher.

The semi-structured interview consisted of three main questions:

1. Can you describe what happened during the event you identified in your questionnaire and describe your experience of that event?
2. How do you understand the notion of death and how do you feel about death?

3. Do you see any relationship between your understanding of death and the traumatic event?

Analysis

Using IPA, three themes from the interviews with participants were identified. Table 4 provides a summary of the super-ordinate and sub-ordinate themes.

Super-ordinate theme: Self-efficacy

a. Sub-ordinate theme: Choosing control

When participants were asked about their experience of the life threatening event and their understanding of death, some participants revealed that although they were experiencing a great deal of fear and anxiety about death during the event, instead of allowing themselves to be completely engulfed by it, they made a conscious choice that they had to gain control over the extremely stressful situation. Participants made a conscious choice to survive and come through this life threatening experience.

It has become apparent that through the interview, this desire to gain control over one's situation is a theme that has played out in their lives even after the event. Most participants talked about their desire to gain control and re-direct their energy toward moving beyond the life-threatening event and looking past it. Instead of dwelling on the

negative or painful effects resulting from the life threatening event, they tried to rise above it by gaining control over their lives.

b. Sub-ordinate theme: rising above the life-threatening event, living for the future and creating goals

In the interviews, most participants talked about their desire to rise above the traumatic life event and live for the future rather than being static and dwelling on the past hurt or trauma. One could argue that thinking about the fact that a better future awaits them was one way for them to manage their distress resulting from the traumatic event. As a result, when most participants spoke about traumatic experiences openly, the language that they used tended not to be about the distress associated with the event but tended to be of optimism and hope i.e. being hopeful about their future. As participants look forward and live for the future, they were also thinking in terms of seeking future goals; this theme was common across most participants.

There was a sense that they did not want the traumatic life event to interfere with their goals in life. This focus on goals and an unwavering commitment to them navigated the aspects of moving beyond traumatic experiences and not to fear them. Accompanying this desire to create and hold onto goals in life, most participants reflected confidence in their ability to fulfil them through intentional action. It is

not unreasonable to say that the foregoing themes imply a strong sense of self-efficacy among these participants. Seemingly, they possess a belief in their ability to confront challenges, achieve goals and manage stressful circumstances or effects, such as death anxiety, resulting from the traumatic circumstances. They believe in the mastery over traumatic life experiences and self-directed goal behaviour.

2) Super-ordinate theme: Religious coping

a. Sub-ordinate theme: Faith

When participants were talking about their experience with traumatic life events and/or possible death, another theme that came up frequently was the notion of faith. Some participants reported that faith was an important part of framing the possibility of death following the event. Furthermore, for some participants, having a strong faith is a way to help them cope with their experience of the traumatic life event. Through the interview, it became apparent that faith and religious coping behaviour were not exclusive for people with a religious faith such as Christians. The non-religious participant also desired to have faith, although he was having an ambivalent attitude toward the notion of God. One could argue that this is not surprising since traumatic life events could heighten one's awareness of divine providence and God's

existence. Even for people who were not particularly religious, putting one's faith in a spiritual being was important to them or imperative in terms of helping them cope with the effect of the traumatic event.

b. Sub-ordinate: Religious behaviour

For most of the participants, having faith was not simply a philosophical idea. Instead, having faith meant initiating intentional action or behaviour. "Serving" God or giving glory to God by serving others imply both a dynamic and action-oriented response to death anxiety and coping with the traumatic event. That is, the focus should be on serving him or doing his will rather than dwelling on the traumatic event and worrying about the possible death. In other words, engaging in such dynamic and action-oriented response is a form of religious coping, i.e. coping with the effect resulting from the event and death anxiety.

3) Super-ordinate theme: Existential attitude

a. Sub-ordinate theme: finding meaning in life-threatening events

When participants talked about their experience with traumatic event and the notion of death, in addition to spiritual issues, participants also talked about existential issues. The word "existential" implies someone in "existence", someone "existing," living for the

present, the here and now. As they live in this here and now experience, they also experienced traumatic growth, namely that the event had changed them in a positive way.

As part of these positive meaningful changes, they found themselves becoming more appreciative in terms of what they have, valuing their lives more and re-adjusting some of their life values. Furthermore, they found themselves wanting to create a meaningful life for themselves. Perhaps, finding meaning is a way to facilitate managing the emotion around the traumatic life events and death anxiety. Thinking about and wishing to live a meaningful life became their priority rather than dwelling on or worrying about death. After all, the threat of death is not something that they could have avoided. Some participants even expressed concern over the consequence of not living a meaningful life before they died.

b. Sub-ordinate theme: responsibility to others

When participants were discussing the traumatic events, they were well aware of death as a possible consequence. They were able to manage the distress of this by focusing more on themselves and being responsible for taking care of others.

In addition, there was a reflection on the consequences of death on their relationships. From their statements, a positive change is valuing relationships and making sure that they do not leave behind “broken” ties with friends and family. In addition, they feel the responsibility to enjoy life and the relationships they have.

Discussion

The aim of phase 1 was to examine the relationship between death anxiety with both PTSD and psychiatric co-morbidity. According to results, the first hypothesis was supported. Death anxiety predicted PTSD as supported by previous research [16-18]. The relationship between death anxiety and PTSD is confirmed and provides an interesting opportunity to suggest the pathway. Death anxiety was positively correlated with PTSD symptoms.

However, the second hypothesis of phrase 1, that death anxiety is related to psychiatric co-morbidity, was not supported. This is inconsistent with most research although some previous studies have suggested the connection between death anxiety and well-being is inconsistent [14, 44-47].

Anxiety buffer disruption theory is useful in helping to understand the connection of death anxiety to PTSD, while at the same time demonstrating a fairly stable well-being [26]. Death anxiety is an inherently human condition of which we are aware at varying levels of

our own mortality. This is both a normal and necessary experience that existential psychologists encourage to accept, confront and attribute meaning to our inevitable death [48-50]. However due to the overwhelming nature of death anxiety, we attempt to deny this mortality through the use of specific mechanisms. These mechanisms serve to protect against general anxiety as well as death anxiety.

The more people defend against death anxiety (thus lower levels), there is a relationship to less PTSD symptoms. If you defend badly against death anxiety (higher levels) then there tends to be higher PTSD symptoms. The positive relationship between death anxiety and PTSD suggests expands the way of looking at anxiety buffer disruption. When you look at death anxiety as an independent variable, the results show PTSD disrupts death anxiety, not just the other way around. Although we swapped the relationship around, it still confirms the anxiety buffer theory. If you defend against death anxiety well, you protect yourself against general anxiety. The results confirm that part of anxiety disruption theory. More research is needed to expand the mediation in that pathway

Reflecting on the results of phase one, it was assumed other factors might influence the relationship of death anxiety to both PTSD and psychiatric co-morbidity (e.g. demographics). However, mediating variables have not been consistently determined by previous studies

[51, 52]. In order to explore this further, phase 2 was conducted to illuminate the results of phase 1.

With an increase in death anxiety, we see an increase in PTSD symptoms. Death anxiety related to the way they express PTSD symptoms, yet while they express that, they are also resilient people. What emerges from phase 1 & 2 is a developing model of death anxiety based on resilience. The main overarching message from the participants is that they have risen above the life-threatening event, and have chosen not to be overcome by death anxiety. This resilience is based on their identification of three coping strategies: self-efficacy, religious coping and existential attitude.

We conclude from phase 1 & 2 that participants engage in a type of death anxiety resilience. From phase 2 of the study, participant reported the use of self-efficacy as a buffering mechanism. Although the literature is limited of the specific use of self-efficacy to buffer against death anxiety, previous literature may provide some clues. Self-efficacy includes a sense of competency in general, and thus can be applied to death anxiety. In other words, high self-efficacious competence, lower death anxiety and vice versa [53]. The emphasis is coping with death itself and self-efficacy then becomes an issue of control or at least a perceived level of control over the end of one's life. Having more self-control to reduce death anxiety buffers the effect on

psychiatric co-morbidity. Thus death anxiety is understood as being controlled by death “competency”, in other self-efficacy [53-55].

The second mode of resilience for the participants is related to religious coping, which has been shown in previous studies to buffer against death anxiety [56-57]. Religious coping regulates the anxiety and providing coping resources to protect against psychiatric co-morbidity [58]. Religious coping is considered to be effective salience mechanism because many times certain belief systems are all encompassing and hard to disprove, thus fairly eternal [59-60]. Religious coping does not actually solve the problem of mortality, but it allows connection to something that will live on after death, which in turn reduces death anxiety [61-63]. Since religious coping lowers death anxiety [64-66], it may explain the results of phase 1. Lowered anxiety would diminish the psychiatric co-morbidity of PTSD.

A third mode of resilience with buffers against death anxiety is existential attitude. Previous literature supports this notion, for example, the creation of meaning has beneficial effects on one’s health, and specifically that sense of purpose and meaning in life reduces death anxiety even in the face of terminal illness (Büssing & Koenig, 2010) [67]. It seems that existential systems are created that both function as a buffer against death anxiety and a “mortality-induced” growth response [68]. With genuine acknowledgement of death anxiety,

individuals gain insight into personal meaning which gives one motivation to pursue life despite traumatic life events [69]. Death anxiety has been shown to increase relational strivings due to experiences of vulnerability and finitude [24, 70]. Thus death anxiety triggers a need for meaning and evaluation of life, thus leading to a shift towards the pursuit of personally fulfilling lives [71]. Studies indicate that prolonged exposure to death may in fact lead people to move beyond death anxiety and instead maintain meaningful goals that can actually have positive effects of mental well-being [72]. This research, then, creates a framework in which the duration of exposure to death anxiety and one's own sense of meaning are more important variables in determining the impact of psychiatric co-morbidity.

Both phase 1 and phase 2 results show that participants who have experienced PTSD have experienced death anxiety. However, mental health difficulties are not prominent in the sample. Studies identifying themes of resilience and hardiness find that these coping mechanism function as independent mediators of post-traumatic recovery supporting this central theme in a belief in one's own ability to exercise control over traumatic adversity [73-74]. In addition, this fortitude serves to help one cope with death anxiety and mediate its effect on PTSD [75]. They may experience death anxiety as a result of

their traumatic experiences; however, these protective factors allow them to cope and move beyond their trauma.

Interestingly, the PTSD group did not have significantly higher psychiatric co-morbidity compared to control group. One could expect a negative aftermath from life-threatening events; however, according to the data, the participants had an equivalent level of mental health functioning. Therefore, as phase 2 has highlighted, this sample population appears highly resilient; the connection of death anxiety to psychiatric co-morbidity may be regulated by these buffering modes of resilience.

It's important to address a potential limitation of this study; language is a potential weakness in both phases of this research. Despite the best attempts to translate the assessments in a way that is both accurate and understandable to the general reader, certain variations in language could influence the results due to the linguistic competency of the translators and their knowledge of cultural nuances. Collecting data in one language and presenting the findings in another involves translation related decisions that may impact the validity of the results [76]. In addition, the phase 2 the interviews were conducted in English and not Lithuanian or Russian. It could be criticized that the interviews should be conducted in their native language to capture the true phenomenological experience [76]. However, practically this was

not feasible. First of all, this researcher does not speak Lithuania or Russian and would not be able to analyse the statements of the participants. Having a native speaker to conduct the interviews was considered, however the issue of translation to English would still be a problem. It was decided that instead of allowing a single translator to transform Lithuanian or Russian statements into English, let the participants choose their own words since they previously demonstrated proficiency in the English language. Despite best attempts to minimize the influence of language, the resources that were available to this research lends a sense of caution about the results of the study.

Conclusion

Death anxiety effects PTSD; the more death anxiety, the more severity of PTSD symptoms. However, this does not necessarily translate to higher psychiatric co-morbidity. People respond to death anxiety by activating different modes of coping and resilience. Using the theory of anxiety buffer disruption theory, we suggest that people enact modes of resilience. The results from this study indicate that people use self-efficacy, religious coping and existential attitude as ways to buffer against death anxiety. This mediating role of these buffers needs more examination, and themes from this study provide useful avenues for future investigation.

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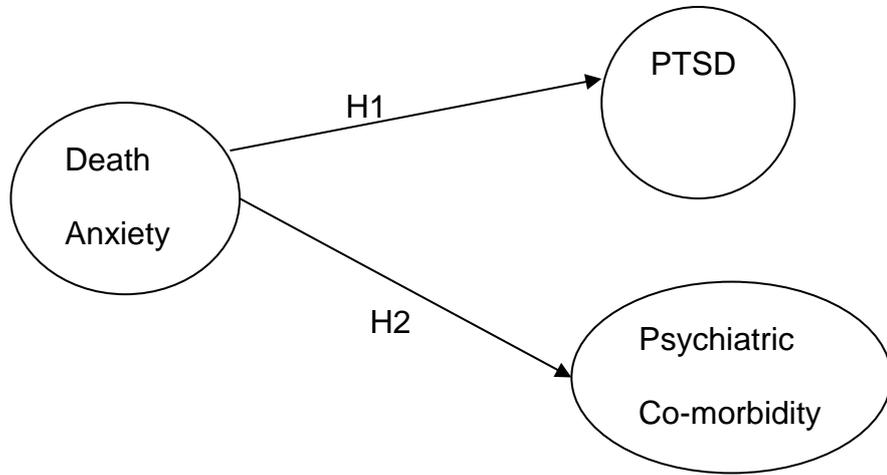
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Figure 1



Notes: H1 & H2 are hypothesis 1 to 2

Table 1 Information on demographic and traumatic events

Participant	Age	Gender	Year level	How long ago (in months)	Traumatic event description
1	19	M	1	13	Serious accident: Involved in a car accident, went through windshield.
2	19	F	1	15	Life-threatening illness: Underwent emergency surgery for brain cancer
3	20	M	3	36	Serious accident: Witnessed explosion of gas main and involved in helping victims
4	21	F	2	19	Physical assault by a stranger: attacked in own home during attempted burglary
5	20	F	3	24	Sexual assault by a stranger: attacked on street resulting in

					permanent physical damage
6	21	M	4	28	Life-threatening illness: throat deformity resulting in blocked air passage, often resulting in emergency hospitalization

Table 2 Demographic details of participants and means and standard deviations for GHQ-28 and DAS in the three groups

	PTSD		No PTSD		Control	
	Mean	SD	Mean	SD	Mean	SD
Age	20.83	2.11	20.83	1.73	19.5	2.27
	N	%	N	%	N	%
Male	11	45.8	10	41.7	18	36.7
Female	13	54.2	14	58.3	31	63.3
Level						
Year 1	7	29.2	9	37.5	27	55.1
Year 2	4	16.7	2	8.3	9	18.4
Year 3	3	12.5	3	12.5	6	12.2
Year 4	10	41.7	10	41.7	7	14.3
Marital Status						
Single	23	95.8	22	91.7	49	100
Married	1	4.2	-----	-----	-----	-----
Co-habiting	-----	-----	2	8.3	-----	-----
Country passport from						
Lithuania	13	54.2	16	66.7	21	42.9
Latvia	2	8.3	1	4.2	1	2.0
Belarus	1	4.2	1	4.2	7	14.3
Russia	2	8.3	1	4.2	4	8.2
Ukraine	4	16.7	1	4.2	10	20.4
USA	1	4.2	4	16.7	-----	-----

Other	1	4.2	-----	-----	6	12.2
	Mean	STD	Mean	STD	Mean	STD
GHQ-28						
Somatic	14.65	3.41	13.95	4.15	14.66	3.50
Anxiety	15.69	4.00	12.95	3.37	13.14	3.96
Social Dysfunction	15.17	3.18	14.39	2.16	15.85	3.40
Depression	14.21	5.92	9.91	3.13	11.10	4.21
DAS						
Total	8.00	2.65	6.29	1.94	7.39	2.92

Table 3 Correlation coefficients between demographic variables and PTSD & Psychiatric Co-morbidity

	PTSD	Psychiatric Co-morbidity
Age	0.165	-0.093
Gender ^a	0.129	0.033
Year level ^{a,b}	0.076	-0.122
Marital Status ^{a,b}	-0.084	0.054
What country is your passport from ^{a,b}	-0.086	-0.049
Number of life-threatening events	0.164	0.215
Type of life-threatening events ^{a b}	0.083	-0.031

Onset of life-threatening events	-0.276	-0.006
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^a point biserial correlations (r_{pb})

^b Dummy variables: year level = lower vs. upper; marital status= single

vs. not single; What country is your passport= Lithuania vs. Other;

Type of traumatic life events =assault vs. non-assault

Table 4 The super-ordinate and sub-ordinate themes

Super-ordinate themes	Sub-ordinate themes	Sample quotes
Self-efficacy	Choosing control	<p>“I could have died right there. But it’s like...in those times you choose. Life is about choices...even hard choices. Choose to live you die, care or hate. Choose to be like moral...human.”</p> <p>“It’s just like the bad moment has come. In those moments I still think OK, no, I’m gonna make it, it’s gonna be fine, it’s always gonna get better. Someone has to create this for themselves.”</p>
	Rising above the traumatic event	<p>“I have dreams I have hopes; these bad things can be hurting or pain. But you can’t stop dreaming, stop living your dreams.”</p>

		<p>"I know the cancer can come back and kill me. So what then to do...wait? I want to finish college and open a business. I can't sit and wait to die. I have too much I want to,.. too much I like to have.</p>
Religious coping	Faith	<p>"If you don't have belief, faith what else do you hang on to?"</p> <p>"I do think about almost dying. I'm an atheist, I don't believe in life after death. But at that moment, I really wish there would be a heaven. Or even if I die, going to other life after death. I wish I could believe in God, but it just goes against my logic."</p>
	Religious behaviour	<p>"I know I could have died, but death... I'm not scared.</p> <p>Sometimes when I worry, I need to go to church, um, to talk about it for ten minutes, to share about that a little bit. "</p>

		<p>“Death, life...living. For me it’s to do good for other people, and not to myself but for other people.”</p>
Existential attitude	Finding meaning in traumatic events	<p>“Maybe just that I’m more aware of death, that it can happen. But I am also aware of life. What will be important about my life?”</p> <p>“When you realize that you are temporarily on this earth, you have to readjust your values. It’s so...fleeting, so fast. Make it count for something.”</p>
	Responsibility to others	<p>“Yeah, I think especially with traumatic events that I’ve described, I do see the connection to the possibility of my death. If I die, I leave a trail to influence my relatives and when I see them hurt, when I see them taking wrong paths, when I see them</p>

		<p>suffer because of the wrong choices ...I kind of take responsibility.”</p> <p>“I’m not scared that I’m going to die, but it scares me more that other people will feel empty...vacant after I die.”</p>
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